

**REMARKS**

This communication is responsive to Office Action of May 6, 2004 in which the following objections were raised: [1-4] The Drawings were objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the reference sign(s) mentioned in the description; [5] The abstract was objected to because the abstract exceeds 150 words in length; and it should not include title; [6] Claims 3-6, 12, 18-22 were rejected under 35 U.S.C. 102(e) as being anticipated by Bremer et al. (US Patent 6,580,785); [7] Claims 7, 9-10, 13, 15-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bremer in view of Mukherjee (US Patent 6,226,322); [8] Claims 8, 11, 14 were objected to as being dependent upon a rejected base claim, but indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant has addressed the Drawings objections either by amendment to the specification or replacement sheets and has amended the Abstract and Claims. Applicant greatly appreciates the Examiners indication of allowable subject matter in Claims 8, 11 and 14. Applicant has Amended Claims 8, 11, 14, 16-18, 21 and cancelled Claims 3-7, 9-10, 12-13, 15, 19-20 and 22.

**1-4. THE DRAWINGS OBJECTED TO FOR FAILING TO COMPLY WITH 37 CFR 1.84(p)(5) AND INFORMALITIES:**

**1. The Drawings were objected to as failing to comply with 37 CFR 1.84(p)(5) specifically element 202 in line 32 of page 7.**

In a telephonic conference with the Examiner on October 26, 2004 the Applicant and Examiner discussed this drawing objection with the Applicant noting that element 202 is disclosed in FIG. 2 and discussed in the corresponding portion of the specification, i.e. *"...Each of these connections terminates in the frame room 200 of the CO. From this room*

*connections are made for each subscriber line via splitters and hybrids to both a DSLAM 202 and to the voice band racks 204. The splitter shunts voice band communications to dedicated line cards, e.g. line card 242 or to a voice band modem pool (not shown). The splitter shunts higher frequency xDSL communications on the subscriber line to a selected line card 210 within DSLAM 202.*" (Applicant's Specification at page 7, lines 6-11, emphasis added). The Applicant noted that DSLAM is again referred to in the discussion of FIG. 3 which shows an exploded representation of a rack within the DSLAM shown in FIG. 2, although not the DSLAM shell itself. The Applicant proposed to the Examiner an amendment to the opening of the Specification to clarify the use of reference numbers throughout the specification. That amendment as proposed by the Applicant constitutes an added paragraph after the paragraph ending on page 6 line 8. The amendment indicates that the 100's magnitude of a reference number corresponds with the number of the figure in which the reference number is first introduced. The Examiner appeared favorably disposed to such amendment as a means for overcoming this objection to the drawings.

**2. The Drawings were objected to as failing to comply with 37 CFR 1.84(p)(5) specifically:**

**Element 260 in FIG.2 :**

Examiner objected to the reference number 260 introduced in FIG. 2 , on the grounds that it is not specifically mentioned in the specification.

Applicant concurs with the Examiner. The reference number 260 in FIG. 2 refers to a network cloud textually labeled with the text 'PSTN', to which the switch matrix 240 is coupled. The acronym 'PSTN' is described in the specification as standing for public service telephone network. (Applicant's Specification at page 6, line 10). The Applicant proposes an amendment to the paragraph beginning on page 7 line 14 to conform the specification with the disclosure in FIG. 2.

**Elements 104, 106, 120, 122, 132, 134, 140 in FIG. 3 :**

Examiner objected to the reference numbers 104, 106, 120, 122, 132, 134, 140 in FIG. 2, on the grounds that it is not specifically mentioned in the specification.

The objected to reference numbers are all '100' series reference numbers and thus refer to elements introduced and discussed in FIG. 1 and the accompanying specification as follows.

*"FIG. 1 depicts an overall system environment in which individual subscribers are coupled across public service telephone network (PSTN) subscriber lines with one or more high speed networks. Telco COs 100, 102, 106 and remote access terminal 104 are shown coupling various subscribers to one another and to a high speed network 140. The high speed network 140 provides fiber optic links between the central office and remote access terminal. CO's 100-102 are coupled to one another via fiber optic link 142. CO 102 couples to remote access terminal 104 via fiber optic link 146. CO also couples to subscriber site 122 via fiber optic link 144. CO 102 and CO 106 couple to one another via a wireless link provided by corresponding wireless transceivers 130 and 132 respectively. The "last mile" connecting each subscriber, (except subscriber 122) is provided by twisted copper PSTN telephone lines. On these subscriber lines voice band and data communication are provided. The data communication is shown as various xDSL protocols including G.Lite, ADSL VDSL, and HDSL2. CO 100 is coupled via G.Lite and ADSL modulated subscriber line connections 160 with subscribers 110 and 112. CO 100 is also coupled via G.Lite and ADSL modulated subscriber line connections 162 with subscriber 114. CO 106 is also coupled via a subscriber line to subscriber 134. Remote access terminal is coupled via subscriber line connections 164 with subscribers 120. In each case the corresponding CO may advantageously be provided with distributed AFE and DSP resources for handling multiple protocols from multiple locations with the added benefit of load balancing, and statistical multiplexing. The apparatus and method of the current invention is suitable for handling communications on any of these subscriber lines."* (Applicant's Specification at page 6, lines 9-29, Emphasis Added).

The Applicant discussed this objection with the Examiner as well in the TPC of October 26, 2004. The above discussed amendment to the Specification explanatory of the

relationship between the reference numbers and the figure numbers is believed to overcome this objection to the drawings.

**Elements 362 in FIG. 3 :**

Examiner objected to the reference number 362 introduced in FIG. 3, on the grounds that it is not specifically mentioned in the specification.

Applicant concurs with the Examiner. Numerous line card and module combinations are introduced in FIG. 3, e.g. bridge module 344 and line card 342. *"Such routing is accomplished by a bridge module 344 on line card 342."* (Applicant's Specification at Page 8, Lines 24-25). The bridge 364 is discussed in the specification, *"In that office data is transferred across ATM bus 312B via bridge 364 to DSP bus 310B."* (Applicant's Specification at Page 8, Lines 28-29 ) but the line card 362 of which the bridge 364 is a part is not discussed in the specification. The Applicant proposes an amendment to the paragraph beginning on page 8 line 9 to conform the specification with the disclosure in FIG. 3.

**Elements 600, 616, 622 in FIG. 6A :**

Examiner objected to the reference numbers 600, 616, 622 introduced in FIG. 6, on the grounds that they are not specifically mentioned in the specification.

Applicant concurs with the Examiner. FIG. 6B shows the transmit packet for transport of data on the system bus with the header and payload portions referenced as 600 and 602 respectively. The relevant paragraph in the specification, however reads as follows: *"The transmit packet comprises a header and a payload portion 602."* (Applicant's Specification at page 13, lines 19-20). The Applicant proposes an amendment to the paragraph beginning on page 13 line 18 to add the header reference number '600' to the above referenced portion of the specification after the word 'header'. FIG. 6B also shows objected to reference number 616 referencing data textually labeled as 'Ch/Reg' (See FIG. 6B) within the payload portion of the transmit packet. The relevant paragraph in the specification, however reads as follows: *"The data may be channel data or information from a specific module within the AFE. These latter requests are register requests. A register is the memory location where control parameters for a module are stored."* (Applicant's

Specification at page 13, lines 22-25). The Applicant proposes a further amendment the paragraph beginning on page 13 line 18 to add the data reference number '616' to the above referenced portion of the specification after the word 'data'. Upon Applicant's review of this paragraph an obvious inconsistency in the description of the transmit packet was noted and a proposed amendment to correct same in page 13 line 26 of the same paragraph is also proposed.

FIG. 6A shows the receive packet for transport of data on the system bus with the header and payload portions referenced as 620 and 622 respectively. The relevant paragraph in the specification, however reads as follows: "*The receive packet contains a header 620 and a payload.*" (Applicant's Specification at page 14, line 6). The Applicant proposes an amendment to the paragraph beginning on page 14 line 5 to add the payload reference number '622' to the above referenced portion of the specification after the word 'payload'.

**3. The labels FIGS 8A and 8B mentioned in pages 15-17 are missing in the Drawings:**

In the Telephonic conference of October 26, 2004 the Applicant discussed the objection to FIGS. 8A-B with the Examiner. It was agreed that Applicant would submit copies of the originally filed sheets 8/20 and 9/20 which contain FIG. 8A and FIG. 8B, labeled as such. These are part of the Appendix.

**4. Applicant should review the Drawings:**

Examiner directed the Applicant to review the reference numbers in the Drawings.

Applicant has completed such review and noted the following errors in either the drawings or specification as indicated:

**In the Drawings:**

FIG. 2 and the accompanying specification the reference number 200 is used to refer to the frame room and to the DSLAM controller. "*Each of these connections terminates in the frame room 200 of the CO.*" (Specification at page 7, line 6, Emphasis Added) "*Each of the DSLAM line cards operates under the control of a DSLAM controller 200 which handles*

*global provisioning, e.g. allocation of subscriber lines to AFE and DSP resources.”*

(Specification at page 7, line 24-26, Emphasis Added) Applicant has amended the reference number for the frame room to 201, in both the specification and by means of a substitute sheet for FIG. 2 to correct this error.

FIG. 11C references the memory and core processor control table associated with the AFE with reference numbers 420 and 422 which are the reference numbers used in Figure 4 for the corresponding portions of the DSP. Applicant has amended the reference number for the AFE core processor's control table and memory, in both the specification and by means of a substitute sheet for FIG. 11C to correct this error.

FIG. 12 references the memory associated with the AFE core processor with reference number 470 rather than the correct reference number 478. Applicant has amended the reference number for the AFE core processor's memory by means of a substitute sheet for FIG. 12 to correct this error.

FIG. 13 references the payload data portion of the packet with the same reference number as the command portion of the packet and the last of the command blocks with the same reference number as the payload data. Applicant has amended the reference numbers for the DPS packets payload data portion and the payload data to provide unique reference numbers for each by means of a substitute sheet for FIG. 13.

#### **In the Specification:**

FIG. 4 Reference number 400 is used to refer to the DMT receive module: *“Within the DMT Rx engine 400 for example, there may be submodules with independent processing capability such as: ... ”* (Specification at page 10, lines 25-26). ‘DMT Rx’ (FIG. 4, reference number 400 label) . The reference on page 10, line 4 of the specification to the DMT Rx module as one of the ‘transmit’ modules is therefore in error. Applicant has corrected this error by means of an amendment to the corresponding paragraph at page 10, line 7.

FIG. 4 shows the AFE with an interpolator filter module referenced as 452. The relevant paragraph in the specification, however reads as follows: “ *The interpolator reads a fixed amount of data from each channel location in the FIFO buffer.* ” (Applicant’s Specification at page 11, line 29-30). The Applicant proposes an amendment to the paragraph beginning on page 11 line 24 to add the interpolator reference number ‘452’ to the above referenced portion of the specification after the word ‘interpolator’.

FIG. 4 shows a AFE the core memory 478 which includes a control table 480. “*The amount of data read ... is governed by entries in the control table 480 for each channel which is established during channel setup ...*” (Specification at page 11, line 31 through page 12, line 1). In the discussion of FIG. 11C this reference number to this control table is incorrectly referenced. “*FIG. 11C shows the local allocation and configuration parameter tables 1120–1122 respectively, associated with the AFE core processor control table 422.*” (Specification at page 19, lines 1-2). “*Then the AFE stores the configuration parameters for the new channel in the control table 470 (See FIG. 4).*” (Specification at page 19, line 16). The Applicant proposes an amendment to the paragraphs beginning on page 19 line 1 and page 19 line 7 to correct the reference numbers 422 and 470 to ‘480’.

FIG. 8A, sheet 8/20, shows process block 802 labeled as “*Get Next Ch[annel]. Address Tx/Rx Data/Reg[ister]*” (See FIG. 8A, reference 802) and process block 814 labeled as “*W-Tx Address Data/Reg*” (See FIG. 8A, reference 814). The relevant portions of the specification however do not include the reference numbers 802, 814 next to the corresponding processes. The Applicant proposes an amendment to the paragraph beginning on page 16 line 1 to add the reference numbers ‘802’ and ‘814’ to the corresponding process description in the specification.

FIG. 8B, sheet 9/20 shows process block 860 labeled as ‘*Assert Bus*’ (See FIG 8B, reference 860). The relevant portions of the specification however do not include the reference number 860 next to the corresponding process description. “*If a read operation is indicated then control passes then the AFE MAC asserts the bus valid signal line after which control passes to decision block 862.*” (Specification at page 16, line 33 through page 17, line 1). The Applicant proposes an amendment to the cited sentence which is part of the paragraph beginning on page 16, line 24 to add the reference number 860 after the word ‘asserts’.

FIG. 11A shows the global allocation table 1100 labeled as '*Global Allocation*' (See FIG. 11A, reference 860). The relevant portion of the specification read as follows: "*In FIG. 11A the global allocation table 100 and the global resource table 1102 are shown.*" (Specification at page 18, lines 5-6). Applicant proposes an amendment to the cited sentence which is part of the paragraph beginning on page 18, line 4 to correct the reference number 100 to '1100'.

FIG. 12 shows initial, setup, and runtime phases of subscriber network communications. The initial phase include steps 1200-1202 (See FIG. 12, references 1200-1202). The relevant portion of the specification however reads as follows: "*During the initial phase of provisioning a selected DSP to support a new channel all or part of the Local allocation table 1100 and the configuration parameter table 1112 may be downloaded 1202 from the DSLAM controller 200 to the targeted DSP and stored in core processor memory 420.*" (Specification at page 19 line 9-12) Applicant proposes an amendment to the cited sentence which is part of the paragraph beginning at page 19, line 7, to correct the reference number 1202 to '1200-1202'. The setup phase includes steps 1206-1208 (See FIG. 12, references 1206-1208). The relevant portion of the specification however reads as follows: "*This involves a setup handshake 1206 of transmission and response between the DSP and the modem at the subscriber premise after which the subscriber line is characterized and the channel bit allocation and gains are established.*" (Specification at page 19 line 18-20) Applicant proposes an amendment to the cited sentence which is part of the paragraph beginning at page 19, line 17 to correct the reference number 1206 to '1206-1208'. The run phase includes steps 1220-1222 (See FIG. 12, references 1220-1222). The relevant portion of the specification however reads as follows: "*Each transmission 1220-1222 of data from the DSP to Subscriber is accomplished across the DSP bus through the transmission of a packet to the AFE and the detection and acceptance by the AFE of those packets with a header AFE ID corresponding to that of the targeted device.*" (Specification at page 19 line 25-28 as amended.) Applicant proposes an amendment to the cited sentence which is part of the paragraph beginning at page 19, line 23 to add the reference numbers '1220-1222' after the first occurrence of the word transmission.

FIG. 13 references the payload data portion of the packet with the same reference number as the command portion of the packet and the last of the command blocks with the



same reference number as the payload data. Applicant has amended the reference numbers for the DPS packets payload data portion and the payload data to provide unique reference numbers for each by means of amendments to the paragraph beginning at page 20, line 1 as well as the paragraph beginning at page 20 line 18.

FIG. 14 shows process 1434 labeled as *'Rewrap Output Data Write New Data Size to Header'* (See FIG. 14 reference 1434). The accompanying portion of the specification however omits the reference number 1434 and reads as follows: *"In process 1432 the packet is processed using parameters previously associated with the channel in the modules channel specific lookup table. Next the module updates the header with the new data size in field 1320 and passes the packet to the next submodule or module or FIFO buffer."* (Specification at page 21, lines 13-16). The Applicant proposes an amendment to the paragraph beginning on page 21 line 3 to add the reference number '1434' after the word 'updates' in the sentence beginning on page 21, line 15 to confirm with the figure. FIG. 14 shows process 1414 labeled as *'Read and Process Data Using New Command'* (See FIG. 14 reference 1414). The accompanying portion of the specification however omits the reference number 1414 and reads as follows: *"Alternately, if in decision process 1408 a determination is made that the flag bit for the module is set control is passed to processes 1410-1414 in which the command is read and the data is read and processed using the new command."* (Specification at page 21, lines 17-18 as amended). The Applicant proposes a further amendment to the paragraph beginning at page 21 line 3 to add both the reference number '1414' and the descriptive label as shown above to conform with the figure. Additionally, FIG. 14 shows control returning through next block 1450 to process 1402. The reference to the next block is omitted from the specification. The applicant proposes an amendment after the last sentence of the paragraph beginning at page 21 line 3 to conform with the figure.

FIG. 15 shows control returning through next block 1510 to process 1512. The next block is labeled as *'Get Next Ch[annel]'* (See FIG. 15 reference 1510). The reference and description of the to the next block is omitted from the specification. The applicant proposes an amendment to the paragraph beginning on page 21, line 22 and specifically to the sentence ending page 21 line 32 of that paragraph to add the omitted reference and description to conform with the figure.

FIG. 16 shows decision and process blocks 1610, 1614, 1616, 1626, 1630, 1632 each textually labeled with a process description in relation to associated ones of the AFE processes. The reference to these processes is not present in the specification. The applicant proposes an amendment to the paragraph beginning on page 22, line 19 to add the omitted reference numbers to corresponding portions of the specification to conform with the figure.

**5. THE ABSTRACT OBJECTED BECAUSE OF INFORMALITIES:**

The abstract was objected to because the abstract exceeds 150 words in length; the informalities and it should not include title.

Applicant has amended the Abstract in conformance with the Examiner's objections.

**6. CLAIMS 3-6, 12, 18-22 REJECTED UNDER 35 U.S.C. 102(e):**

Claims 3-6, 12, 18-22 were rejected under 35 U.S.C. 102(e) as being anticipated by Bremer et al. (US Patent 6,580,785).

Applicant has cancelled Claims 3-6, 12, 19-20 and 22 in order to expedite prosecution, and without prejudice to their prosecution in any continuation or other such filing as the Applicant may elect. Remaining rejected claims under this paragraph, i.e. Claims 18 and 21 have been amended to include the subject matter which the Examiner indicated to be allowable as found in Claims 8, 14.

Applicant respectfully suggests therefore that amended Claims 18 and 21 have been placed in a condition for allowance.

**7. CLAIMS 7, 9-10, 13, 15-17 REJECTED UNDER 35 U.S.C. 103(a):**

Claims 7, 9-10, 13, 15-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bremer in view of Mukherjee (US Patent 6,226,322).

Applicant has cancelled Claims 7, 9-10, 13 and 15 in order to expedite prosecution, and without prejudice to their prosecution in any continuation or other such filing as the Applicant may elect. Remaining rejected claims under this paragraph, i.e. Claims 16-17 have been amended to include the subject matter which the Examiner indicated to be allowable as found in Claims 8, 14.

Applicant respectfully suggests therefore that amended Claims 16 and 17 have been placed in a condition for allowance.

**8. CLAIMS 8, 11, 14 OBJECTED TO AS BEING DEPENDENT UPON A REJECTED BASE CLAIM:**

Claims 8, 11, 14 were objected to as being dependent upon a rejected base claim, but indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant gratefully accepts the Examiner's acknowledgement of allowable subject matter in Claims 8, 11, 14. Claims 8, 11, 14 have been amended to include the limitations of the base and intervening Claims with the exception of the I/O interface limitation of base Claim 3, which limitation the Examiner did not find to be novel.

Applicant thus believes that Claims 8, 11, 14 have been placed in a condition for allowance.

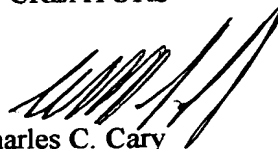
**CONCLUSION**

In view of the above remarks, and the amendments to the Claims, Applicant respectfully submits that all remaining Claims 8, 11, 14, 16-18 and 21 have been placed in a condition for allowance, and requests that they be allowed. Early notice to this effect is solicited.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 50-1338 (Docket No. **VELCP001**).

Respectfully submitted,

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Date: November 1, 2004

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